737

WEIGHT & BALANCE PROCEDURES TRAINING GUIDE

PRODUCED BY: AMERICA WEST AIRLINES

AIRPORT SERVICES TRAINING

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THIS REVISION REPLACES EARLIER EDITIONS

OPS-3131

NOTICE

This manual is for training purposes only. The appropriate Customer Service Manual chapter, or Weight & Balance Manual chapter shall be regarded as the official sources of information. This manual will be updated only when training needs warrant.

Ground Operations Training,
Airport Services Training Department
America West Airlines

An Introduction to the America West Airlines

BOEING 737

WEIGHT & BALANCE PROCEDURES

The series of aircraft built under the Boeing designation "737" are the most popular commercial jet airliners in history. There are more 737's in regular service today than any other jet airliner ever built. So popular has the 737 been with airlines around the world that Boeing has for years maintained a production rate of from 12 to 21 new 737's per month. Even so, Boeing's order backlog for this airplane stretches out for several years into the future.

A twin-engine aircraft designed for short to medium distance routes, the 737 has the same width fuselage and passenger cabin as Boeing's other "narrow-body" jets. This provides passengers with the same basic comfort levels they would find on larger, longer distance aircraft (like the 757). With a built-in Auxiliary Power Unit (APU) and, when equipped with Forward Door airstairs, the 737 debuted in 1967 as the most self-sufficient jet airliner the airlines had ever seen.

Boeing has built five basic types of 737 variants to date. Numbered "-100" to "-500" there are also numerous "sub-types" of varying weights, capacities, and capabilities depending on what the original customer ordered. America West Airlines currently operates three of the 737's variants: the 737-100, 737-200, and 737-300 series. These are configured to seat from 85 to 143 passengers with the one -100 and a number of the -300 aircraft configured for both "First Class" and Coach" passengers.

America West Airlines uses an "Adjusted Weight" method of weight & balance calculation for the 737 aircraft. This manual has the goal of providing you with the information needed to compute safe weight & balance using this method.

This manual is not meant to replace the information provided in the Customer Service Manual, Weight & Balance Manual, or any other relevant technical reference. Rather, it is meant to assist you in becoming comfortable with the particular features of this weight & balance calculation method, and how it is used with the 737 aircraft.

Please keep in mind that company policies regarding the performance of weight & balance calculations tend to change from time to time. It is your responsibility to stay current with changes as they occur. Questions regarding Operations duties should be directed to your supervisor, station trainer, local management, or the Airport Services Training Department.

Most often the information you need can be found in either the Customer Service Manual (Chapter 14 covers Operations/Weight & Balance) or the AWA "Weight & Balance Manual" (Chapter 5 covers the 737).

Should you have any problems, questions, or suggestions regarding the contents or presentation of this manual, please contact: Ground Operations Training, Airport Services Training Department (COMAIL M1-AST) (TEL# 602-693-2618, or OPEX 2618; FAX 602-693-2730). Also, Ground Operations Training can be contacted at printer address "PHXTD".

Do not operate on "hearsay" information.

Finding Your Way Around This Training Guide

Item of particular importance are identified with a:

Items that refer primarily to MAPPER procedures are identified with a:

Items that refer primarily to Manual Trim Sheet Procedures are identified by a:

The first part of the training guide is a general overview of weight & balance trim sheet procedures.

The second part is a combination trim sheet glossary and step-by-step guide to trim sheet completion. Each step will explain what that particular item is and how to calculate the proper entry for that item.

Source Materials for this Training Guide Include:

- the Customer Service Manual (CSM)
- the AWA Weight and Balance Manual (WBM)
- Relevant Aircraft Manufacturer Weight and Balance Manuals
- AWA Pilot Publications Aircraft Data Sheets
- the AWA General Maintenance Manual (GMM)

737 CAPACITIES AND LIMITATIONS

Each aircraft type has capacities and limitations of which you must be aware when calculating both your pre-plan and final weight & balance reports. The following portion of this manual gives detailed information on the capacities of the 737 aircraft currently operated by America West Airlines.

AIRCRAFT WEIGHTS

The following figures reflect information current as of 01 APR 93 and represent maximum weights that are "ultimate weights" for the basic aircraft structure. Weight limits as shown on the Ramp Release for individual flight segments will usually be less than these maximum weights. Modifications to the fleet may also change these figures in the future. Also bear in mind that individual aircraft may vary slightly from the quoted figures.

When filling out a manual weight & balance trim sheet always check maximum structural weights using the DRS entry: "GGAC(tail number).

737 AIRCRAFT WEIGHTS

MZFW = Maximum Zero Fuel Weight
MTXW = Maximum Taxi (or Ramp) Weight
MTOW = Maximum Takeoff Weight
MLW = Maximum Landing Weight

The following tables are for reference only.

737	-100*	-200**	-300**
MZFW	90,000 lbs	89,500 to 106,500 lbs	105,000 to 106,500
MTXW	111,000 lbs	110,000 to 120,000 lbs	125,000 to 135,500 lbs
MTOW	111,000 lbs	109,000 to 119,500 lbs	124,500 to 135,000 lbs
MLW	99,000 lbs	95,000 to 107,000 lbs	114,000 lbs

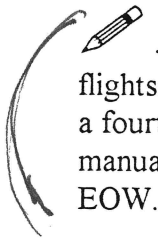
* a/c 708 is currently the only 737-100 in the AWA fleet.

** 737-200 and -300 weights are shown as ranges due to variances in individual aircraft capabilities.

STANDARD FLIGHT CREW

The standard crew of an America West 737 is a Captain, First Officer, and three Inflight Customer Service Representatives. Individual flights will occasionally carry four Inflight CSR's. The Basic Operational Empty Weight (listed on the Ramp Release as "OEW") of the aircraft will reflect carrying only three Inflight CSR's.

When operating the MAPPER computer to calculate weight & balance, the computer will automatically assume that there are only three CSR's on board. If the flight will be going out with four CSR's, you will need to change the entry to correctly reflect the number of CSR's on board.



.When calculating weight & balance on a manual trim sheet, for most flights you will not need to include a "fourth" CSR. If you do need to add a fourth CSR the Adjusted Weight for the "fourth CSR" are printed on the manual trim sheet. A fourth CSR will add 199 lbs (adjusted weight) to the EOW.

The 737 can carry one or two flight deck observers (some can carry only one while others can carry up to two). Standard America West rules regarding "Jumpseat Authorization" will apply and can be found in the Customer Service Manual, page 14.105.007 or the pilot's Flight Operations Manual 04.04.01.

For one flight deck observer, add 201 lbs (adjusted weight) to the EOW. Two flight deck observers will increase the EOW by 400 lbs. These figures are also printed on the manual trim sheet.

As a general rule, assume that Flight Deck Observers are located on the Flight Deck. It is the Captains responsibility to inform you of "non-standard" flight deck observer seating.

Also, CSR's who are checked-in for Cabin Jumpseat (traveling for pleasure) will be sitting in the 4th CSR seat for takeoff and landing. In this case the CSR would be counted as a "4th CSR" even though they are just traveling for pleasure.

PASSENGER CAPACITIES

The current America West 737 aircraft are in service with a variety of passenger compartment configurations. The following tables summarizes 737 configurations as of 01 JUL 93. You should consult the Weight & Balance Summary Sheet (OPS-9903) for the most up-to-date listing.

737 PASSENGER COMPARTMENT CONFIGURATIONS

The following tables are for reference only and are current as of 1 August 1993

737-100	Rows	Maximum Passengers
Zone A	1-7	41
Zone B	8-14	40
Zone C	15-17	23

737-200	Rows	Maximum Passengers
Zone A	1-7	41
Zone B	8-14	40
Zone C	15-21	41

737-300 (all coach)	Rows	Maximum Passengers
Zone A	1-8	47
Zone B**	9-16	48
Zone C	17-24	48(143Y) or 42 (137Y)

737-300 (dual class)	Rows	Maximum Passengers
Zone A	1-8	44
Zone B**	9-16	48
Zone C	17-23	39 (8F/123Y) or 36 (8F/120Y)

* The single 737-100 (a/c 708) currently seats 104 coach class passengers.

** 737-300 aircraft are having two seats removed from zone "B" to allow better access to the overwing emergency exits. This is a gradual process that may take several months to accomplish. ACI and DRS references are regularly updated as these changes are made.

SOURCES: Policies & Procedures, 3 AUG '93; Aircraft Data Sheet, 1 AUG '93.

BAGGAGE AND CARGO CAPACITIES

The maximum allowable loads that can be sustained by the basic structure are listed on the next page.

Additionally, all bin netting must be secured before gate departure of the aircraft. Damage to bin floors, side walls, and bin netting that is damaged or missing must be reported to Maintenance Control immediately.

MAXIMUM ALLOWABLE BIN LOADS

The maximum loads that the structure of the cargo bins are certified to hold are outlined below. These weights are in the memory of the MAPPER automated weight and balance system and are printed on the back side of the manual trim sheets. These maximums are never to be exceeded.

All AWA aircraft have cargo hold floors certified to withstand loads of up to 150 pounds per square inch (psi). Articles exceeding this load value must be placed upon a pallet or other "spreader" device that reduces the floor loading to no more than the 150 psi limit.

Any damage to the floors, side walls, or doors of any cargo bin must be reported to your supervisor and the flight deck crew before flight departure.

All netting must be secured before gate departure by the flight.

➔ If wheelchair batteries are loaded they must be packaged in accordance with company policies and procedures and the Captain is to be informed before gate departure. Additionally, the presence of the battery must be noted in the "REMARKS" section of the Cargo Load Message.

737-100	Maximum Weight (lbs)
Forward	4,154
Aft	5,982

737-200	Maximum Weight (lbs)
Forward	5,486
Aft	7,499

737-300	Maximum Weight (lbs)
Forward	5,002
Aft	7,648

SOURCE: Customer Service Manual.

FUELING CAPACITIES

Fuel for the America West Airlines fleet is measured in pounds. The Fuel Slip that tells the fueler how much fuel should be aboard is prepared by the Operations Agent based on the "MIN" fuel amount calculated by that flights Dispatcher. This information is sent to Operations as part of the Ramp Release.

The "MIN" fuel amount is calculated based on:

- the length of the flight,
- the type of engine (different engines burn fuel at different rates),
- distance to designated alternate airports,
- an amount for airborne "holds" and circling,
- the estimated Zero Fuel Weight (A high Zero Fuel Weight indicates a greater payload than a low Zero Fuel Weight and a heavy airplane will burn more fuel than a light one.)

➲.. Because of the last point (regarding Zero Fuel Weight), if the Zero Fuel Weight that you calculate during your pre-plan or actual final trim exceeds the Planned Zero Fuel Weight (PZFW on the Ramp Release) by more than 5000 pounds you will need to contact your Dispatcher for a new release. Failure to do so can result in the aircraft arriving at its destination with less than the fuel required for a last-minute diversion.

When the fuel slip is filled out the fuel must be equally divided between the Left and Right Wing Tanks ("LM" & "RM" on the fuel slip) with any remaining fuel sent to the Center Tank ("CTR" on the fuel slip).

Total fuel ordered and delivered must never be less than the "MIN" amount stated on the Ramp Release.

Ordering fuel for gate APU Burn: information currently unavailable.

Aircraft Type	Max Fuel per Wing (LM & RM Tanks)	Total Possible Fuel Load
737-100	9,300	33,300
737-200*	9,500	30,300 to 34,500
737-300	10,000	35,500

- The standard maximum fuel capacity for the 737 series aircraft varies with sub-type and may vary from one specific aircraft to another.
- * Variations in Center tank configurations actually result in -200 series aircraft total fuel capacities being in a range from a low of 30,300 up to a high of 34,500. SOURCES: Customer Service Manual; Aircraft Data Sheet, 01 APR 93.

There is a vented "Surge Tank" near each wing-tip which allows for expansion of fuel due to high outside temperatures, and in case of accidental over-fueling.

TRIM SHEET GLOSSARY OF TERMS AND DIRECTIONS

On the trim sheet, gray-shaded boxes indicate totals (you should be adding or subtracting, as needed, the boxes above it) and cross-shaded boxes are used for "Revisions".

Required items in the data block area across the top of the trim sheet are:

- STATION
- FLIGHT
- A/C REG. NO.
- A/C CONFIG.
- FUEL ON BOARD
- RUNWAY
- DATE

Additionally, it is necessary to obtain the maximum structural weights for the aircraft. This information is found in the DRS (System One) under the entry "GGACxxx" - where "xxx" is replaced with the tail number of the aircraft whose weight and balance you are calculating. Example: to find the maximum structural weights for weights for aircraft number 622 you would enter "GGAC622".

Once the entry is done, the screen will display the Maximum Landing Weight (MLW) and Maximum Zero Fuel Weight (MZFW) along with other information for that aircraft. Enter those numbers in the blocks provided on the manual trim sheet.

If the takeoff runway is changed, then the blocks labeled REV. RUNWAY and REV. MTOW near the top of the form must be completed. The flights dispatcher should also be notified using the message shell in the DRS under "GGRWY".

The MAX. T. O. W. blocks to the right of the TAKEOFF WEIGHT blocks in the calculation area (line.) must be filled-in before starting the trim sheet.

The PASSENGER DOCUMENTATION area is for recording passenger weights when non-standard weight procedures (extra weight and half-weight) are being used. It's use is optional at all other times.

The FORWARD HOLD and AFT HOLD areas must be used for all flights. If a given hold is empty, this must be indicated in this area.

The signature and the ID. badge number of the person completing the trim sheet must be entered in the spaces provided, in blue or black ink as required by FAA directive. The remainder of the trim sheet may be completed in pencil.

"ADJUSTED WEIGHTS"

The 737 series of aircraft operated by America West Airlines currently utilize an "Adjusted Weight" method of weight & balance computation. In "Adjusted Weights" the figures used in the "AIRCRAFT LOADING" of a manual trim sheet are a combination of the actual weight of an item plus the effect that the item has on the balance of the aircraft, depending on where it was loaded into the aircraft.

Simply put, a bag weighing 45 pounds will have a different effect on the balance of an airplane if it is loaded in the forward bin than it will if it is loaded in the aft. Just like moving children around on a playground teeter-totter or see-saw, every change in their position on the board will change the balance of the board.

The last two digits of the weight figures used in the "AIRCRAFT LOADING" are called the "balance units" and indicate the effect of the weight loaded onto the aircraft. If you check the adjusted weights for 1000 pounds loaded in the forward hold ("bin") compared to the same weight loaded in the aft hold you will notice that the last two digits are very different. That difference is the indication of a different balance condition.

The "EOW" on the Ramp Release is already an "adjusted weight". All other weights must be adjusted using the weight tables on the back side of the manual trim sheet. (Of course, MAPPER automatically does these calculations for you when doing automated weight & balance.)

➲ The only place where adjusted weights should appear is in the "AIRCRAFT LOADING" area of the trim sheet. Only "actual" weights should appear outside the "AIRCRAFT LOADING" area.

Use of the weight tables for finding the "adjusted weights" of passengers is simply a matter of looking up the number of passengers aboard the aircraft on the appropriate seasonal table and reading across for the correct "adjusted weight".

Finding the "adjusted weights" for bin loads and fuel requires first determining the total actual weight of the bin load or fuel. The weight tables are then consulted. Most likely the weight you have added up is not listed in the table. Therefore, you "round up" to the next higher "adjusted weight" and write that figure into the appropriate blocks in the "AIRCRAFT LOADING". Of course, if the weight you calculated does appear on the table just use that figure.

The "AIRCRAFT LOADING" AREA

The following items are listed in the order in which they appear on the manual Trim Sheet.

Operating Empty Wt. -

The Operating Empty Weight (O.E.W., also known as E.O.W. or Empty Operational Weight) is the weight of the empty aircraft containing only minimum crew (two pilots, three CSR's), operating fluids (engine oil, hydraulic fluid, potable water, lavatory pre-charge, etc.), galley contents, and cart supplies. This figure is found on the Ramp Release as the "EOW" and is already an "adjusted weight".

Flight Deck Observer +

The adjusted weight of one or two observers actually located on the flight deck of the aircraft.

➲ As a general rule, assume that Flight Deck Observers are located on the Flight Deck. It is the Captains responsibility to inform you of "non- standard" flight deck observer seating.

.Other Adjustments ±

The adjusted weight of any changes to the O.E.W. of the aircraft, aside from Flight deck Observers (calculated separately... see above). The most common entry in these spaces will be to calculate the weight of a Fourth Inflight CSR.

Remember, a "jumpseat qualified" Inflight CSR flying "for pleasure" will often be riding in the 4th CSR seat. They are not the same as a Flight Deck Jumpseat rider. Where a Flight deck Jump will be riding in the extreme front of the aircraft, the 4th CSR seat is located at the aft end of the passenger cabin and has a much different effect on aircraft balance.

FINAL O.E.W. =

The total of the "Operating Empty Wt." plus any changes to the "Operating Empty Wt." (such as a Fourth CSR or Flight Deck Observers).

CABIN A PAX No +
CABIN B PAX No +
CABIN C PAX No +

The total number of passengers in each compartment is written in the PASSENGER DOCUMENTATION area of the trim sheet (top left side). The adjusted weight corresponding to the actual weight of passengers in the PASSENGER DOCUMENTATION area is taken from the appropriate passenger weight table (back side of trim sheet) and entered in the appropriate blocks in the AIRCRAFT LOADING area of the trim sheet (right side).

➲ The 737 trim sheet provides tables for Summer (01 May - 31 Oct) and Winter (01 Nov - 30 April) average weights of passengers.

Total Fwd. Hold +
Total Aft Hold +

The number of bags multiplied by the average bag weight, plus the weight of any Freight, Mail, AWA Express, COMAT, or other items loaded in a cargo hold (bin) of the aircraft. Calculations for the each of the holds is arrived at in the same manner and boxes are provided on the left side of the trim sheet for doing the basic "actual weight" calculations. Be careful to use the correct weight table provided for each hold when calculating loads.

➲ The correct method for calculating the cargo hold adjusted weight is to take the total weight of all items in a given hold and find the adjusted weight for that TOTAL weight. It is less accurate to find the adjusted weight for each category of items in the bin (bags, mail, freight, etc.) and calculate the combination of those adjusted weights. (It also takes more time to do it that way).

If the total weight of the items loaded into a cargo compartment does not appear on the weight table, use the adjusted weight for the next highest weight on the chart.

ZERO FUEL WT. +

The Zero Fuel Weight (ZFW) is the total adjusted weight of the loaded aircraft, excluding fuel. This is calculated by combining the "FINAL O.E.W." (line 4), plus the total weight of the three passenger compartments (lines 5,6,7), plus the loaded weights of the two cargo holds (lines 8 & 9).

➲ If your planned or actual ZFW exceeds the "PZFW" listed on the Ramp Release by more than 5000 pounds your Dispatcher must be notified and new releases generated.

The ZFW Weight must be plotted on the C. G. Graph before proceeding with the remainder of the Trim Sheet. The position of this point must be within the "envelope" printed on the graph and must never exceed the "MZFW" pre-printed on the trim sheet. A ZFW point that is "outside the envelope" requires that the load be adjusted.

Lines 11 and 12 are used only for "Revisions" (see page 14).

Fuel On Board +

The adjusted weight of the fuel on board the aircraft before engine or APU start-up. Minimum Fuel Required (MIN) is stated on the Ramp Release generated by Dispatch. The Fuel On Board entry on the Trim Sheet is arrived at by taking the fuel load ordered and, using the fuel table on the back side of the trim sheet, rounding to the next higher adjusted weight.

➲ The amount you write on the bottom of the Ramp Release, and in the trim sheet heading block marked "FUEL ON BOARD:" should all be identical. The amount entered in the "AIRCRAFT LOADING" titled "Fuel on Board" must be "adjusted" and should be the only place on the trim sheet where the "adjusted weight" of the fuel appears.

RAMP WT. +

Also called the Taxi Weight, this is the adjusted weight of the aircraft, fully loaded (passengers, crew, bags, cargo, fuel, etc.), at the gate, prior to gate departure. This figure is obtained by adding the ZERO FUEL WEIGHT (ZFW, Line 10) and

the Fuel On Board (FOB, line 13). Ramp (Taxi) Weight must not exceed the MTXW as printed on that flights' Ramp Release.

Taxi Fuel -

Taxi Fuel is that amount of fuel that Dispatch has calculated that the aircraft will burn, on average, during the ground time from the gate to the takeoff point. Taxi Fuel may vary from station to station, or may change from day to day or flight to flight because of projected weather holds and ATC delays.

In order to correctly obtain the correct Taxi Fuel for a given flight, subtract the MTOW from the MTXW on the Ramp Release. Because the amount of fuel burned for APU and Taxi is minimal, it is considered to have no effect on the overall balance of the aircraft. Therefore, the trim sheet has the last two digits (the "balance units") of the taxi fuel entry pre-filled with zeroes.

TAKEOFF WT =

The Takeoff Weight (TOW) is the calculated adjusted weight of the aircraft as it starts the takeoff roll. This figure is obtained by subtracting the Taxi Fuel (line 15) from the RAMP WEIGHT (line 14) and must never exceed the MTOW listed on the Ramp Release.

➲ The Takeoff Weight is the second point that must be plotted on the C. G. Graph. This point must be within the "envelope" on the graph and never exceed either the MTOW stated on the Ramp Release (and written just to the right of the total you just calculated) or the MTOW pre-printed on the trim sheet, whichever is less.

Lines 17 and 18 are used only for "Revisions.

STABILIZER TRIM UNITS FOR TAKEOFF

These two blocks are where the Takeoff Trim Units are recorded. To determine what the trim units are just take the last two digits of the "TAKEOFF WEIGHT" (line 16) and write them into these two blocks. That's all there is to it.

Est. Fuel Burn -

Sometimes called "Trip Fuel Burn", this is the amount of fuel that Dispatch has calculated this flight will use on this particular flight segment. This figure is calculated by subtracting the "Taxi Fuel" (line 15) from the figure listed under the heading "BURN" on the Ramp Release. (The "BURN" figure on the Ramp Release contains the fuel used for taxi so we have to take that out first to get an accurate figure.) The number you get will always be written as a negative number (no in-flight refueling allowed!).

EST. LDG. WT. =

The Estimated Landing Weight is calculated by subtracting the Est. Fuel Burn (line 20) from the Takeoff Wt. (line 16).

➲ The Est. Ldg. Wt. (LW) is the third, and last, item that must be plotted on the C. G. Graph.

Line 22 is used only for "Revisions".

REVISIONS

REVISIONS

REVISED PAX A ± _____ = ADJ. WT. ±. _____
B ± _____ = ADJ. WT. ±. _____
C ± _____ = ADJ. WT. ±. _____

REVISED BIN LOADS
FWD BAGS X 25/30 ± _____
FWD CARGO ACT. WT ± _____ =ADJ. WT. ± _____
AFT BAGS X 25/30 ± _____
AFT CARGO ACT. WT. ± _____ =ADJ. WT. ± _____

⑪ ZERO FUEL WEIGHT LOAD ADJUSTMENT (TOTAL TO LINE 11) TOTAL= ±
FUEL ADJUSTMENT (IF NONE, CARRY TOTAL DOWN) ±
⑰ GROSS TAKEOFF WEIGHT LOAD ADJUSTMENT (TOTAL TO LINE 17) TOTAL= ±

Current (7/93) allowable variances for passengers and bags for the 737 series are 2 passengers and 12 bags, plus or minus.

If, after completing a "final" trim sheet, additional passenger or baggage loads show up for the flight, or some passengers deplane and/or bags are removed from the flight, no change needs to be made to the trim sheet unless the numbers involved exceed the variance amounts listed above.

If the amounts do exceed the allowable variances a revision to the trim sheet will be necessary.

Trim sheets created in MAPPER are easily revised. The trim sheet completion screen is re-accessed and the numbers changed in the appropriate fields. This is then printed out and taken to the flight deck.

While doing manual trim sheet revisions you could just pull out and complete an entire new trim sheet. However, it is much faster to simply use the "Revisions" block (located just below the "Aircraft Loading" block).

For revised passenger numbers enter the total number change of passengers (not just the amount that exceeds the variance) in the lines provided in the upper portion of the

"Revisions" block. Find the adjusted weight that corresponds to that weight on the tables on the back side of the trim sheet. Enter the weight found onto the line to the right of the "Adj. Wt." label for the proper passenger cabin.

If bin loads change enter the weights for the change onto the lines in the center section of the "Revisions" block. Be sure to show the changes in the correct bins. Find the adjusted weight for the change on the back side of the trim sheet. Enter that figure on the "Adj. Wt." line for the appropriate bin.

Find the total adjusted weight change by adding the adjusted weight changes for passengers and bin loads together. Place the total you calculated in the upper striped set of boxes, marked "ZERO FUEL WEIGHT LOAD ADJUSTMENT". Take that number and copy it in the blocks on line 11 of the "Aircraft Loading" area. Add or subtract as needed the figure on line 11 from the Zero Fuel Weight you calculated earlier. (Make sure you haven't exceeded the aircraft "Maximum Zero Fuel Weight).

If there has been a change in the fuel load show that in the striped blocks labeled "FUEL ADJUSTMENT". As it states there, if there was no change in the fuel place a zero in the rightmost block of that line and move down to the bottom set of striped blocks.

Marked "GROSS TAKEOFF WEIGHT LOAD ADJUSTMENT ", find the total of the topmost and middle striped blocks and write it into this area. Take that figure and write it in on line 17 of the "Aircraft Loading" area. Add or subtract as needed line 17 and line 16 of the "Aircraft Loading" area.

Finally, subtract your estimated fuel burn (line20) from your answer on line 18 to determine the "Rev. Est. Landing Weight" (line 22).

While doing revisions on the manual trim sheet are an infrequent occurrence, the methods are very straightforward and much quicker than completely re-doing the trim sheet.

EXTRA WEIGHT PASSENGER PROCEDURES

Extra Weight Passenger Procedures can be used anytime that you are dealing with a "manifested" group of "heavier than normal", non-standard weight passengers. By "manifested" we mean that there must be documentation showing either an average weight for the group (including their carry-on items) or a detailed list from which you can calculate an average. (CSM 14.140 - see below)

Typical groups that fall into the category of extra weight passengers are military groups, athletic teams, and some special tourist charters.

Using the "PAYLOAD DOCUMENTATION" area of the manual trim sheet (upper left hand side) determine the total number of standard "average weight" passengers in each compartment. Multiply each of these numbers by the seasonal average weight (obtained from the DRS entry "GGSTDWT"). Determine how many "extra weight passengers" are seated in each compartment. Write in the number of "extra weight passengers" in the appropriate block together with the average weight used for them (either from the manifest or from your calculations).

The "TOTAL" box should reflect the total weight of the standard average weight passengers plus the total weight of the extra weight passengers. The adjusted weight for these totals is then looked up on the back side of the trim sheet. Remember that, in this case, you are not looking for a number of passengers but, rather, the next higher adjusted weight from the actual weight total that you calculated. The next higher adjusted weight will go into the appropriate blocks in the "AIRCRAFT LOADING" area of the trim sheet.

Extra weight passengers are often traveling with heavier than normal bags. Be sure to check the manifest for an average baggage weight. Unless all their bags (and any other equipment) will be traveling in just one bin it will be necessary to determine an average bag weight for this group. If standard weight passengers are traveling on the same flight it will be necessary to add the baggage weights of the two groups together to get a total baggage weight per bin. The method you used to calculate the weights can be documented in the "NOTES:" area of the trim sheet.

Customer Service Manual, 14.140, IRREGULAR OPERATIONS (06-01-93)

Extra Weight Passengers are only calculated as such when they are manifested as a group. The manifest is generally provided in advance and includes (but is not limited to) the total number of passengers traveling in the group, the total weight of the passengers, the total number of bags, and the total weight of the baggage and/or any other equipment which is being transported.

Extra weight passengers should be evenly distributed throughout the aircraft when possible.

Example:

PASSENGER DOCUMENTATION

	Std. Pax	Extra Wt. Pax	Total
Cabin A (Rows 1 - 8)	0	45 @ 203	9,135
Cabin B (Rows 9 - 16	0	46 @ 203	9,338
Cabin C (Rows 17 - 24	15 @ 185	32 @ 203	7,771

The example shows a flight with a total of 123 extra weight passengers and 15 winter standard weight passengers on board. Our documentation (not shown) tells us to use 203 pounds for each of the extra weight passengers. (Remember, different groups will probably have different weights.)

The Boarding Coordinator at the gate has determined that all of the standard weight passengers are located in Cabin C. So the passenger documentation area should look similar to the example above.